originating from opposite ends of the study area passing each other within the reach, and so forth. The particular conditions for one measurement might never be duplicated again. Therefore, the model was calibrated to average the five measurements of the 1983-86 period to encompass as wide a range of conditions as possible. The average percent difference between computed and measured values of volume and discharge are listed in table 5. Three measurements were made at Briarcliffe Acres and two at Myrtlewood Golf Course.

As shown in table 5, flood-tide discharges less than -2000 ft^3/s and ebb-tide discharges greater than +2,000 ft^3/s were simulated within -11.0 percent and +8.0 percent respectively. The average discharge variation of the five measurements for the three boundary conditions for these ranges of discharge varied from -2.6 percent to +5.3 percent; therefore, the calibrated model simulations reasonably balanced measured discharges greater than 2,000 ft^3/s in either direction.

Table 5 shows that volumes for flood-tide discharges less than -2,000 ft^3/s and for ebb-tide discharges greater than 2,000 ft^3/s were simulated within -7.7 percent and +10.5 percent. The average volume variation of the five measurements for the three boundary conditions ranged from -4.5 percent to +2.2 percent; therefore, the calibrated model simulations reasonably balanced measured volumes for discharges greater than 2,000 ft^3/s in either direction.

Measured and simulated volumes of discharges between -2,000 ft^3/s and 2,000 ft^3/s were not as accurate as those of discharges outside this range for two reasons:

1. Discharge could not be as accurately measured because of low velocities and undetected reversals of flow in the vertical when the tide changed direction.

2. Discharge could not be as accurately simulated by the model because a one-dimensional model may not adequately account for reversal of flow in the vertical or horizontal dimension when the tide changes direction. Also, the model is very sensitive to small datum errors at the low water-surface slopes that coincide with lower discharges (see "Sensitivity of the Model" section).

Most of the volume transfer is in the range of discharges greater than 2,000 ft^3/s in either direction, rather than in the intervening range of discharge. Approximately 20 percent of the time discharge is in the less accurate -2,000 ft^3/s to 2,000 ft^3/s range; thus, substantially less than 20 percent of the total volume is in the range of less accurate comparison of measured and simulated volumes.

Table 5 shows that except for the Myrtlewood-to-Highway 9 boundary condition of the March 20, 1986 measurement, differences between simulated and measured volumes of flood and ebb tides varied from -8.0 percent to 9.8 percent. Table 5 also shows that variations in the volumes of flood and ebb tides tended to cancel, except for the March 20, 1986 measurement. The percent differences between simulated and measured volumes for flood and ebb tides reflect the total effect of inaccuracies in all the flow categories